EPA Region 7 TMDL Review

TMDL ID	305	*Water Body ID*	MP2-L0520
Water Body Name	Johnson Lake		
Pollutant	Fecal Coliform Bacteria		
Tributary	Tri-County Supply Canal: MP2-20500		
State	NE *HUC*	10200101	
Basin	Missouri River		
Submittal Date	08/27/2004		
Approved	Yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

Letter dated August 24, 2004, was received by EPA August 27, 2004, formally submitting this TMDL for approval under Section 303(d).

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

Nebraska WQS for Primary Contact Recreation states "Bacteria of the Fecal coliform group shall not exceed a geometric mean of 200/100 ml, nor equal or exceed 400/100 ml, in more than 10% of the samples. These criteria are based upon a minimum of 5 samples taken within a 30-day period. This does not preclude fecal coliform limitations based on effluent guidelines. These criteria apply during the recreational period of May 1 through September 30.

The loading capacity is the water quality standard for fecal coliform bacteria. The TMDL target (numeric criteria) will be met through a targeted reduction from the 2001-2003 sampling concentrations.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The WQS are described, including all beneficial uses and numeric criteria. The TMDL target is based on the numeric water quality criteria for fecal coliform bacteria.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

The TMDL target is based on the numeric water quality criteria for fecal coliform bacteria.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

Multiple techniques were employed to assist in the identification of specific sources or source categories. Techniques include traditional water quality sampling and analysis of Johnson Lake and the source water provided by the Tri-County Canal along with microbial source tracking by Source Molecular, Inc., and specific wastewater compound sampling conducted by the USGS. Human and animal sources were identified for six of eight monitoring locations. Maps showing animal feeding operations as non-discharging facilities are provided. There are no NPDES permitted point sources discharging to the Tri-County Canal or Johnson Lake.

Nonpoint sources include failing on-site wastewater systems, run-off from livestock pastures, (wastewater treatment facility sludge, septage or manure) and urban stormwater not regulated by an NPDES permits. Natural sources are also considered from wildlife contributions.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

The loading capacity is based upon elevation/volume in the hydrograph and is defined by:
Load Capacity = Elevation (lake) x 400/100 ml

WLA Comment

There are no permitted facilities that discharge to Johnson Lake or the Tri-County Canal upstream of the lake. The WLA is zero. Non-discharging facilities are provided a WLA of zero.

LA Comment

The lake elevation and the water quality criteria is used to define the acceptable water quality condition at a specific lake elevation to meet the WQS for fecal coliform bacteria and results in an overall load reduction of 55%.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The TMDL identifies an implicit margin of safety; the expected seasonal geometric means for the specific locations and the lake as a whole are 84-91% less than required seasonal geometric means. Additionally, achieving the 55% reduction of fecal coliform will result in values that exceed the 400/100 ml that is 50% less than necessary for the composite of all lake samples.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

Seasonal variation is considered in the recreational season of May 1 through September 30, and water quality and lake elevation data was limited to this time period.

Public Participation

Submital describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

The availability of this TMDL in draft form was published in the Kearney Daily Hub and the Lexington Clipper Herald with the public comment period running from approximately July 9, to August 16, 2004; the draft TMDL was also available to the public for review on NDEQ's website and no comments were received.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

Future monitoring will occur on an annual basis.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.

Although reasonable assurances are not required for this TMDL, Nebraska has identified several Federal, State, local, and non-government organizations that may be included in the implementation process, as well as enforcement and compliance measures as needed for NPDES permits.